ABBYY

ABBYY Vantage

Expense Management Processing Skill Guide

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About ABBYY Vantage

ABBYY Vantage is a comprehensive Content Intelligence platform that provides AI-powered cognitive services and pre-trained and trainable skills that can "understand" business documents and extract actionable data and insights.

This no-code / low-code platform makes today's digital worker and processes smarter and empowers the new citizen developer to accelerate digital transformation initiatives and expand automation to new processes in a fast and simple way, making an immediate impact on business results and customer experience.

Types of documents that can be processed with Vantage

Vantage is capable of processing structured, semi-structured, and unstructured documents in a variety of input formats and languages.

- **Structured documents** are documents which always include the exact type of information in the exact same locations. One example of structured documents are pre-formatted forms.

- **Semi-structured documents** are documents which generally include the same or similar information, but in each document the location, size, and number of fields may vary from document to document. Examples of semi-structured documents are bills, payment orders, and invoices.

- **Unstructured documents** are documents which consist of continuous text. Required information is usually located inside a sentence that can be on any page of the document. Examples of unstructured documents are contracts, lease agreements, and e-mail messages.

Note: Use Advanced Designer to create skills for extracting data from unstructured documents.

The Vantage platform comes with a set of built-in skills, which can extract data from certain document types out-of-the-box (i.e. invoices, purchase orders, receipts, bills of lading, delivery notes). These skills can be adjusted according to specific requirements and further trained based on customer-specific documents.

Vantage users have also the option to design and train a completely new Document skill, Classification skill, and/or Process skill based on their own document set.

Expense Management Skills

ABBYY Vantage offers **Expense Management** skills designed for extracting data from expense-related documents (e.g., receipts). These skills handle a wide range of expenses, primarily related to business travel and entertainment.

To process expense-related documents of different types within one workflow, ABBYY Vantage offers the following built-in skills:

- [Expense Management Processing](#)

- [Expense Management Classifier](#)

Expense Management Processing Skill

First, the **Expense Management Processing** skill has all incoming receipts classified by type. Next, the appropriate Receipt skill (Hotel Invoice, Receipt or Receipt CJK, Taxi Receipt) will be applied to the receipts of each class.

The Expense Management Processing skill can be used to extract data from receipts of the following types: taxi receipts, hotel invoices, and receipts for various other expenses (including expenses from general retail, restaurant bills, parking charges, toll payments, gasoline expenses, and other payments, such as tickets or services).

Expense Management Classifier Skill

The **Expense Management Classifier** skill identifies and classifies expense-related documents by their type: taxi, hotel, or other expenses. The classes correspond to the following pre-trained Receipt skills available in Vantage:

- Hotel Invoice skill for processing hotel invoices

- Receipt and Receipt CJK skills for processing categories of expenses, including general retail, restaurant bills, parking charges, toll payments, gasoline expenses, and other payments, such as tickets or services

- Taxi Receipt skill for processing taxi receipts

Languages selected by default: English.

Hotel Invoice - Document Skill

The **Hotel Invoice** skill extracts data from hotel invoices or bills. It typically extracts details such as the date of the stay, room rates, additional charges, and the total amount to be paid.

The Hotel Invoice skill has been fully trained on a large document set and provides highly accurate data identification and extraction.

Countries and Languages

Countries	Languages
- Australia - Canada - France - Germany - Italy - Mexico - Spain - USA	English

Extracted Fields

Field		Description
Date		The date when the invoice was issued by the hotel.
Check-in Date		The date when the guest checked into the hotel.
Check-out Date		The date when the guest checked out of the hotel.
Nights		The duration of the guest's stay.
Hotel Name		The name of the hotel.
Address		The address of the hotel.
City		
State		
Postal Code		
Country		
Phone		The phone number of the hotel.
Currency		The currency of the payment.
Total		The total amount of the invoice.
Tax Total		The total amount of tax levied on the purchase. If the **Tax Total** field is empty, it can be filled in automatically by the **Process money fields and currency** rule.
Taxes (repeating group)	Tax Rate	Tax details. No details will be shown if the **Tax Rate** and **Tax Amount** fields are empty. If multiple taxes have been detected, they will be displayed in multiple lines in the table. The total amount of tax will be recorded in the **Tax Total** field.
	Tax Amount	
Payment Method		Payment method. Possible values: • Card • Cash

Field		Description
		• Transfer • Mixed • Undefined
Card Type		The payment processing network of the card used for payment. Possible values: • Mastercard • VISA • AmericanExpress • NationalCard • Undefined
Credit or Debit		Whether a credit or debit card was used. Possible values: • Credit • Debit
Card Number		The number of the card used for payment. The number may be partially masked, with some of the digits replaced with the X character.
Line Items (repeating group)	SKU	The stock-keeping unit identifier of services or items provided to the guest (if present).
	Description	The name of the purchased service or item.
	Quantity	The quantity of the service or item purchased.
	Price	The price per unit.
	Amount	The total amount in the line item.

Key Fields

- Date

- Currency

- Total

Validation Rules

Rule	Description
Process money fields and currency	• Splits the amount and the currency in the **Total**, **Tax Total**, and **Tax Amount** fields, and copies the currency into the **Currency** field if it has not been filled in. • Checks that the sum of the **Taxes** and **Tax Amount** fields is equal to the value of the **Total Tax** field. If the values are not equal, displays an error message and suggests filling in the fields with their calculated values. If a value for the **Total Tax** field was not found, fills it in with its calculated value. • Displays a warning message if the **Total Tax** field value is greater than 50% of the value in the **Total** field. • Checks that the value of the **Currency** field is a known ISO currency. If the currency is not known or has not been extracted, suggests currency values for the supported countries. Currency descriptions and symbols are replaced with ISO codes.
Process Date	Normalizes the **Date** field value. Date ambiguities are resolved with the help of the **Country** value.
Process Taxes	• Suggests a value for the **Tax Amount** field based on the **Tax Rate** and the net amount of the purchase, or the other way round. This is possible only if the net amount has been detected. • Removes the % sign from the **Tax Rate** field and normalizes ambiguous values.
Process number of nights	• Normalizes the **Check-in** and **Check-out** field values. • Calculates the length of stay and fills the **Nights** field with the result. Date ambiguities are resolved with the help of the **Country** value.

Note: To fill in a field with the calculated value, click the ◢ button in the value region of the appropriate field and select one of the suggestions from the drop-down list.

Parameters

The **Hotel Invoice** skill has default skill parameters that you can use to modify the field extraction process. You may want to change the values of these parameters in Vantage or Advanced Designer for certain document processing scenarios (for example, if you are only processing documents from certain countries). For more information, see Skill parameters.

Parameter	Description
PredefinedCountries	A predefined list of countries that restricts automatic country detection for hotel invoices. By default, the value of this parameter is empty. You can specify desired countries by writing in their Alpha-2 ISO country codes separated by a semi-colon. The value of this parameter will primarily affect the extraction of data from the **Country**, **Currency**, **Tax Total**, and **Taxes** fields.
PredefinedExpenseType	A predefined list of expense types that restricts automatic expense type detection for hotel invoices. The default value of this parameter is **Hotel**. 🔖 **Note:** We do not recommend changing the value of this parameter.

Receipt - Document Skill

The **Receipt** and **Receipt CJK** skills extract data from receipts.

A receipt is a document that confirms that payment for goods or services has been received. A receipt typically contains the following information:

- A list of goods or services for which payment has been received

- The place where the goods or services have been purchased

- The date and time of the purchase

The Receipt and Receipt CJK skills have been fully trained on a large document set and provide high accuracy of data identification and extraction.

The Receipt skill can recognize handwritten numbers in **Tip** and **Total** fields. This option is enabled by default. If you do not intend to import forms containing handwritten numbers, disable the **Handwritten** option in the settings.

Countries and Languages

Countries and languages supported by the Receipt skill:

Countries	Languages
- Australia - Belgium - Brazil - Canada - Finland - France - Germany - Hungary - Italy - Ireland - Luxembourg - Mexico - Netherlands - New Zealand - Norway - Panama - Peru - Poland - Serbia - Singapore - Slovakia - Spain - Sweden - Turkey - United Kingdom - USA	- Catalan - Dutch - English - Estonian - Finnish - French - German - Hungarian - Italian - Norwegian (Bokmal) - Polish - Portuguese (Brazil) - Serbian (Latin) - Slovak - Spanish - Swedish - Turkish

Countries and languages supported by the Receipt CJK skill:

Countries	Languages
• China • Japan • South Korea • Taiwan	• Chinese Simplified • Chinese Traditional • English • Japanese (Modern) • Korean (Hangul)

Extracted Fields

Field	Description
Expense Type	The type of the expense. Possible values: • Airfare (receipts for booked flights) • Car Parking (receipts from parking meters) • Car Rental (receipts from car rental services) • Gasoline Station (receipts from gas stations) • General Retail (receipts from stores, supermarkets, etc.) • Restaurant (restaurant bills) • Toll Road (toll receipts) • Transport (receipts for public transportation fares)
Vendor	The name of the organization that issued the receipt.
Address	The address of the organization that issued the receipt.
Phone	The phone number of the organization that issued the receipt.

Field	Description
Date*	The date when the payment was made.
Country	The country where the payment was made.
City	The city where the payment was made.
Payment Method	Payment method. Possible values: • Card • Cash • Transfer • Mixed • Undefined
Card Type	The payment processing network of the card used for payment. Possible values: • Mastercard • VISA • AmericanExpress • NationalCard • Undefined
Credit or Debit	Whether a credit or debit card was used. Possible values: • Credit • Debit
Card Number	The number of the card used for payment. The number may be partially masked by replacing some digits with the X character.
Currency*	The currency of the payment.
Total*	The total amount of the receipt.
Tip*	The tip amount.

Field		Description
Tax Total		The total amount of tax levied on the purchase. If the **Tax Total** field is empty, it can be filled in automatically by the **Process money fields and currency** rule.
Taxes • Tax Rate • Tax Amount		Tax details. No details will be shown if the **Tax Rate** and **Tax Amount** fields are empty. If multiple taxes have been detected, they will be displayed as multiple lines in the table. The total amount of tax will be recorded in the **Tax Total** field.
Line Items (repeating group)	The list of the purchased goods or services.	
	Description	The name of the purchased product or service.
	SKU	The stock-keeping unit identifier of the product (if present).
	Quantity	The quantity of the product purchased.
	Price	The price per unit.
	Amount	The total sum in the line item.

*Required field or field group: values cannot be empty.

Key Fields

• Date

• Currency

• Total

Validation Rules

Rule	Description
Process money fields and currency	• Splits the amount and the currency in the **Total**, **Tax Total**, and **Tax Amount** fields, and copies the currency into the **Currency** field if it has not been filled in.

Rule	Description
	- Checks that the sum of the **Taxes** and **Tax Amount** fields is equal to the value of the **Total Tax** field. If the values are not equal, displays an error message and suggests filling in the fields with their calculated values. If a value for the **Total Tax** field was not found, fills it in with its calculated value. - Displays a warning message if the **Total Tax** field value is greater than 50% of the value in the **Total** field. - Checks that the value of the **Currency** field is a known ISO currency. If the currency is not known or has not been extracted, suggests currency values for the supported countries. Currency descriptions and symbols are replaced with ISO codes.
Process Date	Normalizes the **Date** field value. Date ambiguities are resolved with the help of the **Country** value.
Process Taxes	- Suggests a value for the **Tax Amount** field based on the **Tax Rate** and the net amount of the purchase, or the other way round. This is possible only if the net amount has been detected. - Removes the % sign from the **Tax Rate** field and normalizes ambiguous values.

Note: To fill in a field with the calculated value, click the ◢ button in the value region of the appropriate field and select one of the suggestions from the drop-down list.

Parameters

The **Receipt** and **Receipt CJK** skills have default skill parameters that you can use to modify field extraction. You may want to change the values of these parameters in Vantage or Advanced Designer for certain document processing scenarios (for example, if you are only processing documents from certain countries or if all your receipts have the same general expense type). For more information, see Skill parameters.

Parameter	Description
PredefinedCountries	A predefined list of countries that restricts automatic country detection for receipts. For the **Receipt** skill, the default value of this parameter is empty. You can specify desired

Parameter	Description
	countries by writing in their Alpha-2 ISO country codes separated by a semi-colon. For the **Receipt CJK** skill, the default value of this parameter is **CN; HK; JP; KP; KR; MO; MY; PH; SG; TW**. You can change this value by deleting any of the unnecessary country codes. The value of this parameter will primarily affect the extraction of data from the **Country**, **Currency**, **Tax Total**, and **Taxes** fields.
PredefinedExpenseType	A predefined list of expense types that restricts automatic expense type detection for receipts. By default, the value of this parameter is empty. You can specify the expense types that you actually intend to process separating them by a semi-colon. The possible values are: • **Airfare** (receipts for booked flights) • **CarParking** (receipts from parking meters) • **CarRental** (receipts from car rental services) • **GasolineStation** (receipts from gas stations) • **GeneralRetail** (receipts from stores, supermarkets, etc.) • **Hotel** (receipts from hotels) • **Restaurant** (restaurant bills) • **TollRoad** (toll receipts) • **Transport** (receipts for public transportation fares) • **Other**

Taxi Receipt - Document Skill

The **Taxi Receipt** skill extracts data from taxi receipts, typically including details such as the date, time, fare amount, currency, starting location, destination, the name of the taxi service provider, and additional information like the address of the service provider.

The Taxi Receipt skill has been fully trained on a large document set and provides high accuracy of data identification and extraction.

Countries and Languages

Countries	Languages
USA	English

Extracted Fields

Field	Description
Date	The date when the receipt was issued by the service provider.
Start Date	The date when the taxi ride started.
End Date	The date when the taxi ride ended.
Days	The number of days for which the taxi services were provided.
From Location	The starting location of the taxi ride.
To Location	The destination of the taxi ride.
Vendor	The service provider responsible for the transportation service.
Address	The address of the service provider.
City	
State	
Postal Code	
Country	
Phone	The phone number of the service provider.
Currency	The currency of the payment.
Total	The total amount of the receipt.
Tax Total	The total amount of tax levied on the purchase. If the **Tax Total** field is empty, it can be filled in automatically by the **Process money fields and currency** rule.

Field		Description
Taxes (repeating group)	Tax Rate	Tax details. No details will be shown if the **Tax Rate** and **Tax Amount** fields are empty. If multiple taxes have been detected, they will be displayed in multiple lines in the table. The total amount of tax will be recorded in the **Tax Total** field.
	Tax Amount	
Payment Method		Payment method. Possible values: • Card • Cash • Transfer • Mixed • Undefined
Card Type		The payment processing network of the card used for payment. Possible values: • Mastercard • VISA • AmericanExpress • NationalCard • Undefined
Credit or Debit		Whether a credit or debit card was used. Possible values: • Credit • Debit
Card Number		The number of the card used for payment. The number may be partially masked, with some of the digits replaced with the X character.

Key Fields

- Date

- Currency

- Total

Validation Rules

Rule	Description
Process money fields and currency	• Splits the amount and the currency in the **Total**, **Tax Total**, and **Tax Amount** fields, and copies the currency into the **Currency** field if it has not been filled in. • Checks that the sum of the **Taxes** and **Tax Amount** fields is equal to the value of the **Total Tax** field. If the values are not equal, displays an error message and suggests filling in the fields with their calculated values. If a value for the **Total Tax** field was not found, fills it in with its calculated value. • Displays a warning message if the **Total Tax** field value is greater than 50% of the value in the **Total** field. • Checks that the value of the **Currency** field is a known ISO currency. If the currency is not known or has not been extracted, suggests currency values for the supported countries. Currency descriptions and symbols are replaced with ISO codes.
Process Date	Normalizes the **Date** field value. Date ambiguities are resolved with the help of the **Country** value.
Process Taxes	• Suggests a value for the **Tax Amount** field based on the **Tax Rate** and the net amount of the purchase, or the other way round. This is possible only if the net amount has been detected. • Removes the % sign from the **Tax Rate** field and normalizes ambiguous values.
Process time interval	• Normalizes the **Start Date** and **End Date** field values. • Calculates the service duration and fills the **Days** field with the result. Date ambiguities are resolved with the help of the **Country** value. 🔖 **Note:** Services completed within a single day are considered to be one day in length and not zero days.

🔖 **Note:** To fill in a field with the calculated value, click the ◢ button in the value region of the appropriate field and select one of the suggestions from the drop-down list.

Parameters

The **Taxi Receipt** skill has default skill parameters that can be used to modify field extraction. You may want to change the values of these parameters in Vantage or Advanced Designer for certain document processing scenarios (for example, if you are only processing documents from certain countries). For more information, see Skill parameters.

Parameter	Description
PredefinedCountries	A predefined list of countries that restricts automatic country detection for taxi receipts. By default, the value of this parameter is empty. You can specify desired countries by writing in their Alpha-2 ISO country codes separated by a semi-colon. The value of this parameter will primarily affect the extraction of data from the **Country**, **Currency**, **Tax Total**, and **Taxes** fields.
PredefinedExpenseType	A predefined list of expense types that restricts automatic expense type detection for taxi receipts. The default value of this parameter is **Taxi**. 🔖 **Note:** We do not recommend changing the value of this parameter.

Using a Skill in ABBYY Vantage

To use a skill in ABBYY Vantage, you need to import it to your **Skill Catalog**.

To import a skill, open the **Skill Catalog** and click the ⤴ **Import** button in the toolbar. In the dialog box that will open, specify a path to the archive that contains the skill you are importing.

This skill will be uploaded to your **Skill Catalog** and published.

If the chosen archive is larger than 2 GB, you will see a dialog box with a link to a shared folder and its credentials.

You should open this folder and upload the archive. The skill will be imported to Vantage automatically. The archive will then be deleted from the shared folder. All files uploaded to this folder afterwards will be transferred to the exception folder. Hence you may use this folder to import only one skill. The folder remains active for 14 days.

The version of the imported skill will be 1.0. If such a skill previously existed in the tenant and was deleted, the version number of the deleted skill will be incremented and assigned to the imported skill. The version number of the imported built-in skills is always the same as at the time of export.

If the skill you are importing already exists in your **Skill Catalog**, ABBYY Vantage will display a warning message and will ask whether you want to create a new version of the existing skill or save the new skill

under a different name. If you choose the latter, the new skill will be called *<Imported skill name New>*.

🔖 **Note:** Vantage supports the import of skills exported from Advanced Designer. However, such skills will only be trainable in Vantage if a Fast Learning activity was added to the document processing flow in Advanced Designer.

Importing a Document skill with data catalogs

Data catalogs exported with a skill are imported according to the table below:

Does a catalog with the same name exist in your tenant?		Import of the catalog	Import of the data (if data was exported)
No		The catalog is imported.	The data is imported.
Yes	The set of columns and their types are the same.	The catalog is not imported.	The data is imported. Previous data in the catalog is lost.
	The set of columns and/or their types differ.	The catalog is imported with the name <Catalog_name Skill_name>.	The data is imported.

Importing a Process skill

If you import a Process skill that was exported without referenced skills, you have to make sure that all the referenced skills exist in the **Skill Catalog**. If necessary, such skills should be imported before the Process skill, otherwise you'll get an error when importing the Process skill.

If you import a Process skill that was exported with referenced skills, they will be imported as follows:

- If such a skill exists in the Catalog, it will not be imported. The skill from the Catalog will be used, even if the skill in the import archive has a newer version.

- If a skill with the same name exists in the Catalog, the skill will be imported and renamed. The link in the Process skill will be updated.

If the imported skill has shared folder import set up, this feature needs to be enabled manually after the import.

🔖 **Note:** The availability of this feature depends on the user's role. For more information about roles, see Role-Based Access Control.

To publish a skill:

1. Select one by left-clicking it and then click 🚀|**Publish** in the toolbar. This will open the Skill Designer's **Publish** tab, where you will have to fill out some information.

2. Click the **Publish Skill** button either at the bottom of the Skill Designer window or in the **Actions** pane.

🔖 **Note:** The availability of this feature depends on the user's role. For more information about roles, see Role-Based Access Control.

You can start using a skill right away or try it out on your documents first. To try out a skill, click the **Try** button in the **Skill Catalog**.

For more information on importing, publishing, or trying out skills, please refer to the ABBYY Vantage Skill Catalog Guide.

If a skill does not fully meet your processing requirements, you can edit it to suit your needs. For detailed instructions, please refer to the ABBYY Vantage Skill Designer Guide.